CP CHEMISTRY Name: _____
(Due 1 day after performing) Date: _____ Period: _____

Introduction to Balancing Equations Lab

Background: The law of conservation of mass states – _____
A chemical formula is – _____
A coefficient is – _____
A subscript is – _____

Directions:

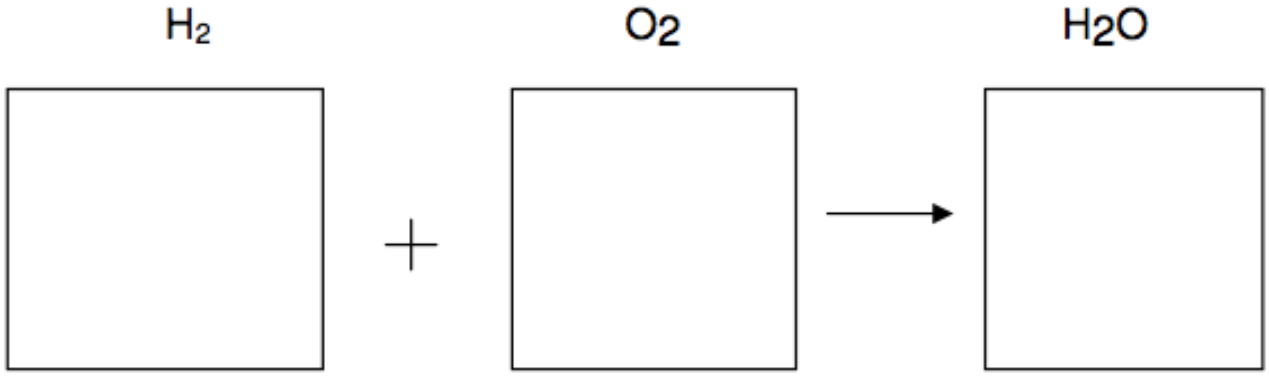
1. Use the beads to represent atoms.
2. Set up the reactants using the correct number of beads. Move the same beads to the product side. As the reactions become more difficult you may need to set up the products first and then work backwards.
3. Set up the molecules and fill in the coefficients. (if they are needed)
4. Draw and color the equations that represent the balanced reactions.

Data Table:

Atom	O	H	Na	Cl	K	Ca
Color:	White	Pink	Orange	Green	Purple	Blue
Number	12	8	4	4	4	2

Understanding Balanced Chemical Equations:
When chemicals react, atoms are conserved. This means that there must be the same number of each atom on each side of the arrow.

Reaction 1: $H_2 + O_2 \rightarrow H_2O$

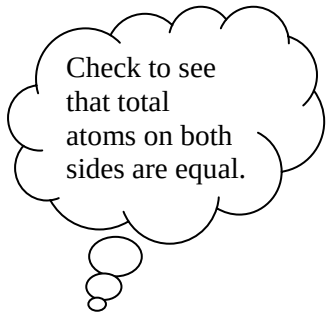


How many H beads are on the left side? _____ , On the right side? _____

How many O beads are on the left side? _____, On the right side? _____

Is the equation currently balanced? Circle Answer: Yes or No

Reaction #1: Write the balanced chemical equation:



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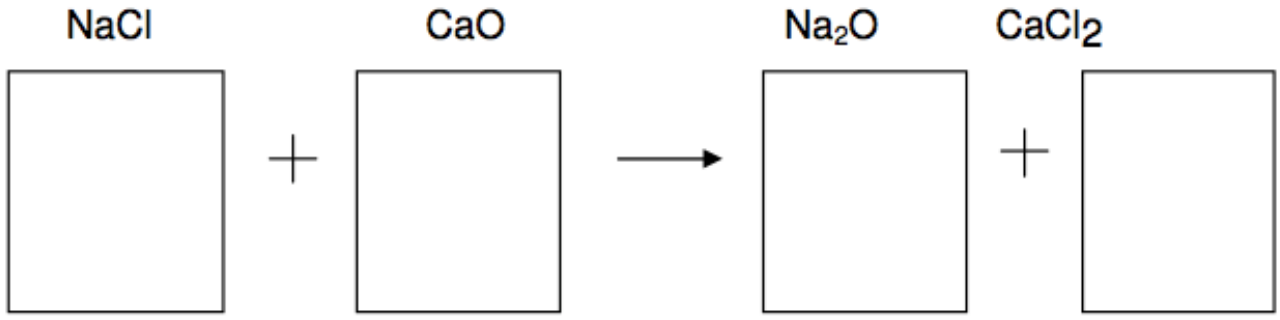
Introduction to Balancing Equations Lab (continued)

Data Table:

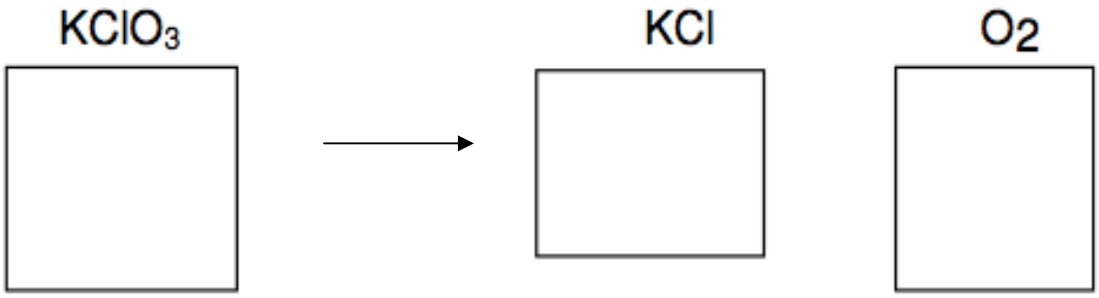
Atom	O	H	Na	Cl	K	Ca
Color:	White	Pink	Orange	Green	Purple	Blue
Number	12	8	4	4	4	2

Reaction 2: $NaCl + CaO \rightarrow Na_2O + CaCl_2$



Reaction 2: Write the balanced chemical equation:

Reaction 3: $KClO_3 \rightarrow KCl + O_2$



Reaction 3: Write the balanced chemical equation:

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Introduction to Balancing Equations Lab (continued)

Reaction 4: KOH + Na → NaOH + K

KOH Na NaOH K

Reaction 4: Write the balanced chemical equation:

Data Table:

Atom	**O**	**H**	**C**	**S**	**Br**
Color:	White	Pink	Orange	Green	Blue
Number	12	8	4	4	2

Balance the following equations. Fill in any necessary coefficients on the lines provided. Draw out the bead diagram of the balanced equation to the right of the equation.

1. ___ H_2O + ___ SO_3 → ___ H_2SO_4

2. ___ H_2 + ___ Br_2 → ___ HBr

3. ___ C + ___H_2 → ___CH_4

4. ___ C + ___ O_2 → ___ CO

5. ___ H_2O_2 → ___ H_2O + ___ O_2

Don't forget! You can change the coefficient, but you can not change the subscript!

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Introduction to Balancing Equations Lab (continued)

Analysis Questions:

1. What do the beads represent in this lab?

2. What is a coefficient and what does it apply to?

3. What are the steps needed to balance a chemical equation? (list them in the space below)

4. How does the Law of Conservation of Matter apply to chemical reactions?

Going Further:

Balance these equations. Write in any necessary coefficients on the lines provided.

1. ___ Zn + ___ HCl → ___ ZnCl + ___ H_2

2. ___ KNO_3 → ___ KNO_2 + ___ O_2

3. ___ HCl + ___ $CaCO_3$ → ___ CO_2 + ___ H_2O + ___ $CaCl_2$